General Specifications

**Saturn® 20 Gas Turbine**
- Industrial, Two-Shaft
- Axial Compressor
  - 8-Stage
  - Pressure Ratio: 6.7:1
  - Inlet Airflow: 6.4 kg/sec (14.2 lb/sec)
- Combustion Chamber
  - Annular-Type
  - 12 Fuel Injectors
  - Torch Ignitor System
- Gas Producer Turbine
  - 2-Stage, Reaction
  - Max. Speed: 15,000 rpm
- Power Turbine
  - 1-Stage, Reaction
  - Max. Speed: 22,300 rpm
- Bearings
  - Journal: Multi-Ramp Sleeve
  - Thrust: Fixed Tapered Land
- Coatings
  - Compressor: Inorganic Aluminum
  - Turbine and Nozzle Blades: Precious Metal Diffusion Aluminide
- Velocity Vibration Transducer

Key Packages Features

- Base Frame with Drip Pans
- Compressor
  - Compressor Auxiliary Systems
  - 316L Stainless Steel Piping ≤4" dia
  - Compression-Type Tube Fittings
  - Digital Gauge Panel
    - Fluid Gauges
    - Electrical System Options
    - NEC, Class I, Group D, Div. 1
    - CENELEC, Zone 1
  - Turbotronic™ Microprocessor Control System
    - Freestanding Control Console
    - Color Video Display
    - Vibration Monitoring
  - Control Options
    - 24-VDC Control Battery/Charger System
    - Turbine and Package Temperature Monitoring
    - Serial Link Supervisory Interface
    - Turbine Performance Map
    - Compressor Performance Map
    - Historical Displays
    - Printer/Logger
    - Process Controls
    - Compressor Anti-Surge Control
    - Field Programming
- Start Systems
  - Pneumatic
  - Direct-Drive AC
- Fuel System
  - Natural Gas
  - Integrated Lube Oil System
  - Turbine-Driven Accessories
  - Tank Vent Separator
  - Flame Trap
- Oil System Options
  - Oil Cooler
  - Oil Heater
- Axial Compressor Cleaning Systems
  - On-Crank/On-Line
  - Cleaning Tank
- Gearbox (if applicable)
  - Speed Increaser
  - Speed Decreasers
- Air Inlet and Exhaust System Options
- Enclosure and Associated Options
- Factory Testing of Turbine and Package
- Documentation
  - Drawings
  - Quality Control Data Book
  - Inspection and Test Plan
  - Test Reports
  - Operation and Maintenance Manuals

Oil & Gas Applications
Solar Turbines
A Caterpillar Company

SATURN 20
Gas Turbine Compressor Set
Oil & Gas Applications

Performance

Output Power: 1185 kW (1590 hp)
Heat Rate: 14 670 kJ/kW-hr (10,370 Btu/hp-hr)
Exhaust Flow: 23 410 kg/hr (51,615 lb/hr)
Exhaust Temp.: 520°C (970°F)

Nominal Rating – per ISO
At 15°C (59°F), at sea level
No inlet/exhaust losses
Relative humidity 60%
Natural gas fuel with
LHV = 35 MJ/m³ (940 Btu/scf)
Optimum power turbine speed
AC-driven accessories
Engine efficiency: 24.5%

Available Power

INLET AIR TEMPERATURE, °C (°F)
OUTPUT POWER, kW (hp)
HEAT RATE, MJ/kW-hr (Btu/hp-hr)

Package Dimensions*

Length: 4.7 m (15’ 4”)
Width: 1.9 m (6’ 1”)
Height: 2.0 m (6’ 8”)
Typical Weight: 6805 kg (15,000 lb)

*Driver package only, dry weight, unenclosed height